

Notice of Allowability

Application No.

10/801,600

Examiner

Joni Hsu

Applicant(s)

KIM ET AL.

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers received January 9, 2006.
2. ☒ The allowed claim(s) is/are 1-2, 4-14, 18-24.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments, see pages 8 and 9, filed January 9, 2006, with respect to Claims 1-2, 4-14, and 18-24 have been fully considered and are persuasive. The 35 U.S.C. 102(e) rejections of Claims 14 and 15 and the 35 U.S.C. 103(a) rejections of Claims 16, 19-20, and 22 and the objections to Claims 18 and 19 have been withdrawn.

Allowable Subject Matter

2. Claims 1-2, 4-14, and 18-24 are allowed.

The following is an examiner's statement of reasons for allowance:

3. The prior art of record fail to teach or suggest individually or in combination a memory access control apparatus, wherein the apparatus further comprising the following limitations: "wherein the predetermined data is a word per bank, a row per unit line, an offset, and a base row value" (as per Claim 1). Claims 2 and 4-13 depend from Claim 1, and therefore also contain allowable subject matter.

The prior art also does not teach that the rows per unit line is based on a number of pixels in the one horizontal line of image data, a number of pixel data storable per column of the memory bank, a number of columns per memory bank, and a number of memory banks per row, as recited in Claim 14. Claims 18-22 depend from Claim 14, and therefore also contains allowable subject matter.

The prior art also does not teach that the offset is calculated as $(E/F)*G$, wherein E is the number of pixels in one vertical line of image data, F is the number of pixel data storable per line of memory bank, and G is the rows per unit line, as recited in Claim 23. Claim 24 depends from Claim 23, and therefore also contains allowable subject matter.

4. The closest prior art (Carlton US006667930B1) teaches a method for storing image data for an image in a memory wherein the memory includes a plurality of banks, comprising storing the image data in a plurality of memory banks, wherein pixel data for each horizontal line of the image are stored in two or more memory banks (*when drawing horizontal lines, two memory banks are accessed*, Col. 3, lines 19-25), and pixel data for each vertical line of the image are stored such that at least one memory bank includes two or more pixel data of the vertical line (*drawing a vertical line, all four banks are accessed at the same time with each memory bank outputting pixels from the same column*, Col. 3, lines 12-15). However, Carlton does not teach that the rows per unit line is based on a number of pixels in the one horizontal line of image data, a number of pixel data storable per column of the memory bank, a number of columns per memory bank, and a number of memory banks per row.

5. Another prior art (Yoshioka US006075899A) teaches that half-pel interpolation in the vertical axis refers to the generation of components for each line in a luminance block using an average value of a component on a given row and the component on the next row (Col. 4, lines 1-4). Therefore, Yoshioka discloses that the step of mapping each pixel comprises determining rows per unit line, wherein the rows per unit line is defined as a number of rows of each memory

bank (Col. 15, lines 64-67) needed to store one horizontal line of image data; and mapping each pixel based on the rows per unit line (Col. 13, lines 18-40). However, Yoshioka does not teach that the rows per unit line is based on a number of pixels in the one horizontal line of image data, a number of pixel data storable per column of the memory bank, a number of columns per memory bank, and a number of memory banks per row.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art of Record

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Carlton (US006667930B1) teaches an enhanced checkerboard arrangement for 4-bank SRAM (Col. 2, lines 11-12).
2. Yoshioka (US006075899A) teaches an image decoding apparatus and an image memory that enables motion compensation to be performed using a low-speed operation clock by reducing the number of reads and read times for reads of luminance components and chrominance components performed on an SDRAM (Col. 7, lines 16-21).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joni Hsu whose telephone number is 571-272-7785. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH



Kee M. Tung
Primary Examiner